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G70-C GENERAL PERMIT ENGINEERING EVALUATION

PREVENTION AND CONTROL OF AIR POLLUTION IN REGARD TO THE CONSTRUCTION, MODIFICATION, RELOCATION, ADMINISTRATIVE UPDATE AND OPERATION OF NATURAL GAS PRODUCTION FACILITIES LOCATED AT THE WELL SITE

APPLICATION NO.: **G70-C188A**	FACILITY ID: **049-00188**

☐ CONSTRUCTION
☒ MODIFICATION
☐ RELOCATION
☐ CLASS I ADMINISTRATIVE UPDATE
☐ CLASS II ADMINISTRATIVE UPDATE

BACKGROUND INFORMATION

Name of Applicant (as registered with the WV Secretary of State's Office): EQT Production Company

Federal Employer ID No. (FEIN): 25-0724685

Applicant's Mailing Address: 625 Liberty Avenue, Suite 1700

City: Pittsburgh	State: PA	ZIP Code: 15222

Facility Name: GLO-76

Operating Site Physical Address: Near Mannington
If none available, list road, city or town and zip of facility.

City: Near Mannington	Zip Code: 26582	County: Marion

Latitude & Longitude Coordinates (NAD83, Decimal Degrees to 5 digits):
Latitude: 39.56398
Longitude: -80.48958

SIC Code: 1311 NAICS Code: 211111	Date Application Received: August 28, 2016
Fee Amount: $3,000	Date Fee Received: September 20, 2016
Applicant Ad Date: September 28, 2016	Newspaper: Times West Virginian
Date Application Complete: December 13, 2016	Due Date of Final Action: January 27, 2016

Engineer Assigned: David Keatley

Description of Permitting Action: Permit Registration G70-C188A will supersede and replace permit registration G70-A188. Installation of one (1) 3.33-mmBtu/hr enclosed combustor.

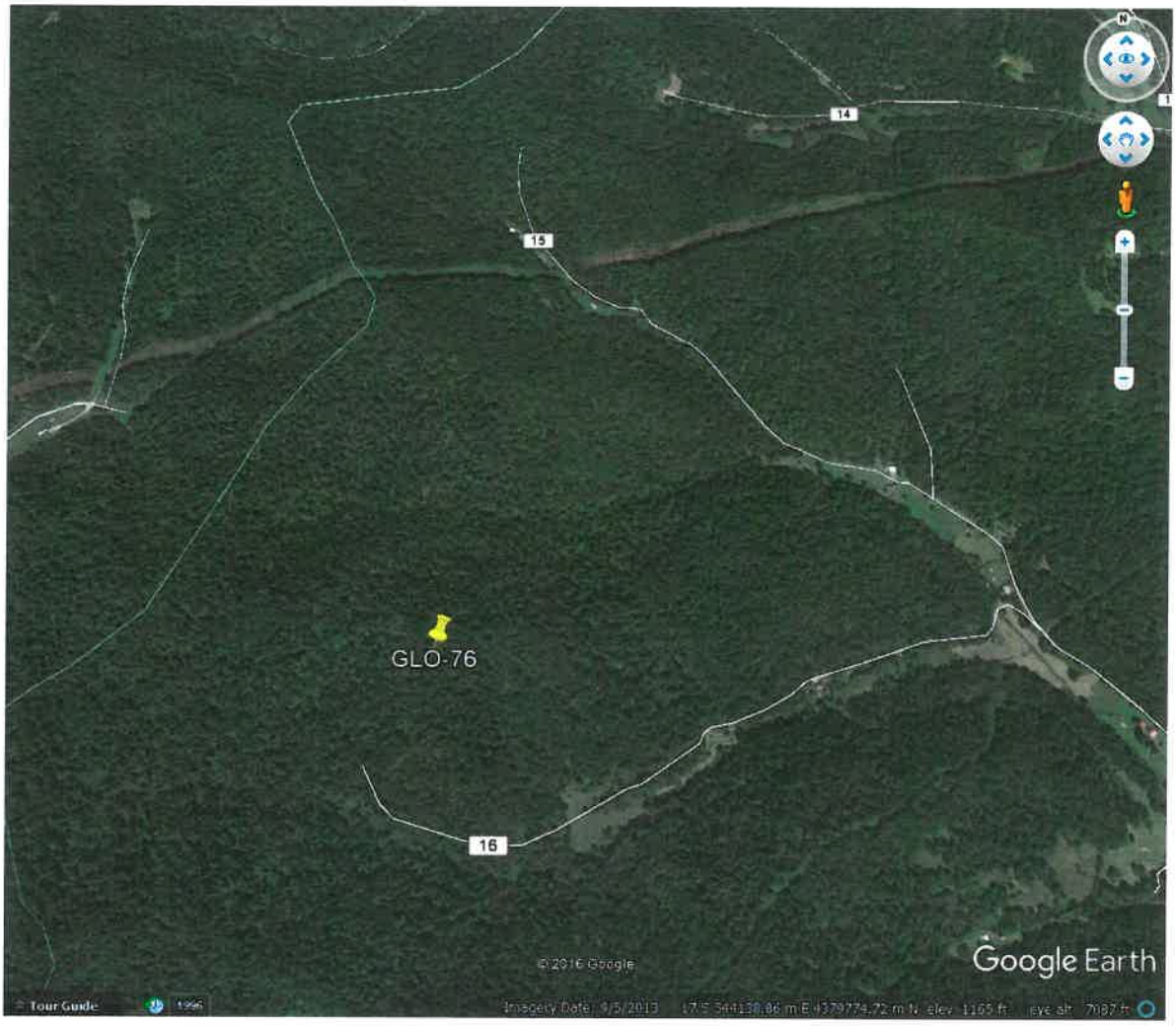
PROCESS DESCRIPTION

Raw natural gas from nine (9) natural gas wells is sent through sand separator(s). Liquid from the sand separator flows to one (1) 140-bbl sand separator tank (S011). The gas from the sand separator(s) goes to line heaters (S012 - S020). The line heaters increase the temperature of the gas to encourage phase separation in a separator. The gas from the separator is sent to a dehydration unit to reduce the water content of the natural gas stream. The produced liquids from the separator are sent to ten (10) 400-bbl tanks (S001 - S010). The produced liquids will be trucked off site at a maximum rate of 9,972,333 gallons/year.

After separation the natural gas goes to the contractor of the TEG dehydration unit to reduce the water content of the natural gas. Natural gas will flow countercurrent to circulating TEG. After dehydration the natural gas stream will exit the facility via pipeline. The rich TEG will first go to a flash tank where the volatile organic will be liberated and are controlled by one (1) 3.33-mmBtu/hr LEED 24" enclosed combustor C001. The liquids from the flash tank will go to the regenerator where water is boiled off through the still vent S024 which is controlled by enclosed combustor C001. The enclosed combustor will have a thermocouple to detect the presence of the flame. The regenerator is heated by one (1) 0.75-mmBtu/hr reboiler.

SITE INSPECTION

Site Inspection Date: February 17, 2016
Site Inspection Conducted By: Brian Tephabock
Results of Site Inspection: The site is very remote and the only homes are at the entrance of the access road which is several hundred yards to the pad.
Did Applicant meet Siting Requirements? Yes
If applicable, was siting criteria waiver submitted? Not Applicable (NA)
Directions to Facility: The directions to the facility from the application are: Head North on I-79 to exit 136. At the bottom of the ramp make a left on to Fairmont Gateway Connector, then go 1.2 miles going straight through two traffic circles. Continue straight onto Jefferson St. crossing the bridge, for 0.4 miles. Turn left onto Jackson St. and continue 0.1 miles to U.S. Rt. 250 North. Turn right and go 13.4 miles to Market Street, then turn left. Travel 0.1 miles, continue on Buffalo St. Continue 5.9 miles, then turn left onto Brink Road (Co Rt. 1). Travel 4.5 miles to access road on right.
Overhead Google Earth Image of Facility:



ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

The following table indicates which methodology was used in the emissions determination:

Emission Unit ID#	Process Equipment	Calculation Methodology (e.g. ProMax, GlyCalc, mfg. data, AP-42, etc.)
S001 through S010	Produced Liquid Tank (400 BBL)	E&P Tanks
S012 through S020	Line Heaters (1.54 mmBtu/hr)	EPA AP-42 emission factors
S021 through S023	Thermoelectric Generator (0.013 mmBtu/hr)	EPA AP-42 emission factors
S024	Dehydration Unit (65 mmscfd)	GRI-GLYCalc
S025	Reboiler (0.75 mmBtu/hr)	EPA AP-42 emission factors
S026	Dehydration Drip Tank (100 BBL)	E&P Tanks
S027	Liquid Loading (9,972,333 gallons/year)	EPA AP-42 equation
C001	LEED Combustor (3.33 mmBtu/hr)	EPA AP-42 equation

The total facility PTE for the facility (including fugitive emissions) is shown in the following table:

Pollutant	Facility Wide PTE (tons/year)
Nitrogen Oxides	7.15
Carbon Monoxide	6.01
Volatile Organic Compounds	16.09
Particulate Matter	1.07
Particulate Matter-10/2.5	1.07
Sulfur Dioxide	0.04
Benzene	0.02
Ethylbenzene	0.06
Toluene	0.09
Xylenes	0.09
Hexane	0.21
Total HAPs	0.49
Carbon Dioxide Equivalent	10,379

Emission Point ID	Emission Unit ID	Emission Source	Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (tpy)
C001	C001 and S024	LEED Combustor (Controlling Dehydration Unit) 3.33 mmBtu/hr	Nitrogen Oxides	0.30	1.34
			Carbon Monoxide	0.26	1.12
			Volatile Organic Compounds	0.26	1.14
			Total Particulate Matter	0.02	0.10
			Benzene	0.01	0.02
			Ethylbenzene	0.01	0.06
			Toluene	0.02	0.08
			Xylenes	0.02	0.08
			n-Hexane	<0.01	0.01
			CO_2e	440	1,928

REGULATORY APPLICABILITY

45CSR2 (Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers)

The purpose of 45CSR2 (Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers) is to establish emission limitations for smoke and particulate matter which are discharged from fuel burning units.

45CSR2 states that any fuel burning unit that has a heat input under ten (10) MMBTU/hr is exempt from Sections 4 (weight emission standard), 5 (control of fugitive particulate matter), 6 (registration), 8 (testing, monitoring, recordkeeping, reporting) and 9 (startups, shutdowns, malfunctions). However, failure to attain acceptable air quality in parts of some urban areas may require the mandatory control of these sources at a later date. If the individual heat input of all of the proposed fuel burning units are below 10 MMBTU/hr, these units are exempt from the aforementioned sections of 45CSR2. However, the registrant would be subject to the opacity requirements in 45CSR2, which is 10% opacity based on a six-minute block average. Fuel burning units greater than 10 MMBTU/hr are ineligible for registration under General Permit G70-C

Emission Unit ID#	Emission Unit Description	Maximum Design Heat Input (MDHI) (MMBTU/hr)
S012 through S020	Line Heaters	1.54 each
S021 through S023	Thermoelectric Generator	0.013 each
S025	TEG Dehydration Unit Reboiler	0.75

45CSR6 (To Prevent and Control Air Pollution from the Combustion of Refuse)

45CSR6 prohibits open burning, establishes emission limitations for particulate matter, and establishes opacity requirements. Sources subject to 45CSR6 include completion combustion devices, enclosed combustion devices, and flares.

The facility-wide requirements of the general permit include the open burning limitations §§45-6-3.1 and 3.2.

All completion combustion devices, enclosed combustion devices, and flares are subject to the particulate matter weight emission standard set forth in §45-6-4.1; the opacity requirements in §§45-6-4-3 and 4-4; the visible emission standard in §45-6-4.5; the odor standard in §45-6-4.6; and, the testing standard in §§45-6-7.1 and 7.2.

Enclosed combustion control devices and flares that are used to comply with emission standards of NSPS, Subpart OOOO are subject to design, operational, performance, recordkeeping and reporting requirements of the NSPS regulation that meet or exceed the requirements of 45CSR6.

Emission Unit ID#	Maximum Design Heat Input (MDHI) (MMBTU/hr)	Subject to Weight Emission Standard?	Control Efficiency Claimed by Registrant	Provide Justification how 45CSR6 is met.
C001	3.33	☒ Yes ☐ No	98%	The allowable emission standard is more than the estimated emissions.

45CSR10 (To Prevent and Control Air Pollution from the Emission of Sulfur Oxides)

45CSR10 establishes emission limitations for SO_2 emissions which are discharged from stacks of fuel burning units. A "fuel burning unit" means and includes any furnace, boiler apparatus, device, mechanism, stack or structure used in the process of burning fuel or other combustible material for the primary purpose of producing heat or power by indirect heat transfer. Sources that meet the definition of "Fuel Burning Units" per 45CSR10-2.8 include GPUs, in-line heaters, heater treaters, and glycol dehydration unit reboilers.

Fuel burning units less than 10 MMBtu/hr are exempt. The sulfur dioxide emission standard set forth in 45CSR10 is generally less stringent than the potential emissions from a fuel burning unit for natural gas. The SO_2 emissions from a fuel burning unit will be listed in the G70-C permit registration at the discretion of the permit engineer on a case-by-case basis. Issues such as non-attainment designation, fuel use, and amount of sulfur dioxide emissions will be factors used in this determination. Fuel burning units greater than 10 MMBTU/hr are ineligible for registration under General Permit G70-C

Fuel burning units burning natural gas are exempt from Section 8 (Monitoring, Recording and Reporting) as well as interpretive rule 10A. The G70-C eligibility requirements exclude from eligibility any fuel burning unit that does not use natural gas as the fuel; therefore, there are no permit conditions for 45CSR10.

Emission Unit ID#	Emission Unit Description	Maximum Design Heat Input (MDHI) (MMBTU/hr)
S012 through S020	Line Heaters	1.54 each
S021 through S023	Thermoelectric Generator	0.013 each
S025	TEG Dehydration Unit Reboiler	0.75

45CSR13 (Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, and Procedures for Evaluation)

45CSR13 applies to this source due to the fact that the applicant is defined as a "stationary source" under 45CSR13 Section 2.24.b. *Stationary source* means, for the purpose of this rule, any building, structure, facility, installation, or emission unit or combination thereof, excluding any emission unit which meets or falls below the criteria delineated in Table 45-13B which: (a) is subject to any substantive requirement of an emission control rule promulgated by the Secretary; (b) discharges or has the potential to discharge more than six (6) pounds per hour and ten (10) tons per year, or has the potential to discharge more than 144 pounds per calendar day, of any regulated air pollutant; (c) discharges or has the potential to discharge more than two (2) pounds per hour or five (5) tons per year of hazardous air pollutants considered on an aggregated basis; (d) discharges or has the potential to discharge any air pollutant(s) listed in Table 45-13A in the amounts shown in Table 45-13A or greater; or, (e) an owner or operator voluntarily chooses to be subject to a construction or modification permit pursuant to this rule, even though not otherwise required to do so. 45CSR13 has an original effective date of June 1, 1974.

The applicant meets the definition of a stationary source because (check all that apply):

☒ Subject to a substantive requirement of an emission control rule promulgated by the Secretary.
☒ Discharges or has the potential to discharge more than six (6) pounds per hour and ten (10) tons per year, or has the potential to discharge more than 144 pounds per calendar day, of any regulated air pollutant.
☐ Discharges or has the potential to discharge more than two (2) pounds per hour or five (5) tons per year of hazardous air pollutants considered on an aggregated basis.
☐ Discharges or has the potential to discharge any air pollutant(s) listed in Table 45-13A in the amounts shown in Table 45-13A or greater.
☐ Voluntarily chooses to be subject to a construction or modification permit pursuant to this rule, even though not otherwise required to do so.

General Permit G70-C Registration satisfies the construction, modification, relocation and operating permit requirements of 45CSR13. General Permit G70-C sets forth reasonable conditions that enable eligible registrants to establish enforceable permit limits.

Section 5 of 45CSR13 provides the permit application and reporting requirements for construction of and modifications to stationary sources. No person shall cause, suffer, allow or permit the construction, modification, relocation and operation of any stationary source to be commenced without notifying the Secretary of such intent and obtaining a permit to construct, modify, relocate and operate the stationary source as required in the rule or any other applicable rule promulgated by the Secretary.

If applicable, the applicant meets the following (check all that apply):

☐ Relocation
☒ Modification
☐ Class I Administrative Update (45CSR13 Section 4.2.a)
☐ Class II Administrative Update (45CSR13 Section 4.2.b)

45CSR16 (Standards of Performance for New Stationary Sources Pursuant to 40 CFR Part 60)

45CSR16 applies to all registrants that are subject to any of the NSPS requirements described in more detail in the Federal Regulations section. Applicable requirements of NSPS, Subparts IIII, JJJJ and OOOO are included in General Permit G70-C.

The applicant is subject to:
☐ 40CFR60 Subpart IIII
☐ 40CFR60 Subpart JJJJ
☒ 40CFR60 Subpart OOOO

45CSR22 (Air Quality Management Fee Program)

45CSR22 is the program to collect fees for certificates to operate and for permits to construct or modify sources of air pollution. 45CSR22 applies to all registrants. The general permit fee of $500 is defined in 45CSR13. In addition to the application fee, all applicants subject to NSPS requirements or NESHAP requirements shall pay additional fees of $1,000 and $2,500, respectively.

Registrants are also required to obtain and have in effect a valid certificate to operate in accordance with 45CSR22 §4.1. The fee group for General Permit G70-C is 9M (all other sources) with an annual operating fee of $200.

40CFR60, Subpart OOOO (Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution)

EPA published its New Source Performance Standards (NSPS) and air toxics rules for the oil and gas sector on August 16, 2012. EPA published final amendments to the Subpart on September 23, 2013.

40CFR60 Subpart OOOO establishes emission standards and compliance schedules for the control of volatile organic compounds (VOC) and sulfur dioxide (SO_2) emissions from affected facilities that commence construction, modification or reconstruction after August 23, 2011. The affected sources which commence construction, modification or reconstruction after August 23, 2011 are subject to the applicable provisions of this Subpart as described below:

Gas well affected facilities are included in General Permit G70-C in Section 5.0.
Are there any applicable gas well affected facilities? ☒ Yes ☐ No

If Yes, list.

API number(s) for each Gas Well at this facility	Date the Gas Well was drilled or re-fractured
47-049-02346	March 16, 2016
47-049-02329	March 27, 2016
47-049-02347	March 25, 2016
47-049-02401	March 30, 2016
47-049-02334	March 21, 2016
47-049-02332	April 2, 2016
To Be Determined (TBD)	TBD
TBD	TBD
TBD	TBD

The above wells are actually subject to Subpart OOOOa

Centrifugal compressor affected facilities are included in General Permit G70-C, Section 11.0.
Are there any applicable centrifugal compressor affected facilities not located at the well site?
☐ Yes ☒ No

Each centrifugal compressor affected facility, which is a single centrifugal compressor using wet seals that is located between the wellhead and the point of custody transfer to the natural gas transmission and storage segment. A centrifugal compressor located at a well site, or an adjacent well site and servicing more than one well site, is not an affected facility under this Subpart.

Reciprocating compressor affected facilities are included in General Permit G70-C, Section 12.0.
Are there any applicable reciprocating compressor affected facilities not located at the well site?
☐ Yes ☒ No

Each reciprocating compressor affected facility, which is a single reciprocating compressor located between the wellhead and the point of custody transfer to the natural gas transmission and storage segment. A reciprocating compressor located at a well site, or an adjacent well site and servicing more than one well site, is not an affected facility under this subpart.

Pneumatic controllers affected facilities are included in General Permit G70-C, Section 10.0.
Are there any applicable pneumatic controller affected facilities? ☐ Yes ☒ No

For the natural gas production segment (between the wellhead and the point of custody transfer to the natural gas transmission and storage segment and not including natural gas processing plants), each pneumatic controller affected facility, which is a single continuous bleed natural gas-driven pneumatic controller operating at a natural gas bleed rate greater than 6 scfh.

Requirements for storage vessel affected facilities are included in General Permit G70-C, Section 7.0. Determination of storage vessel affected facility status is included in Section 6.0 of General Permit G70-C.
Are there any applicable storage vessel affected facilities? ☐ Yes ☒ No
If No, list any emission reduction devices and control efficiencies used to avoid 40CFR60 Subpart OOOO.
None

Each storage vessel affected facility, which is a single storage vessel located in the oil and natural gas production segment, natural gas processing segment or natural gas transmission and storage segment, and has the potential for

VOC emissions equal to or greater than 6 tpy as determined according to this section by October 15, 2013 for Group 1 storage vessels and by April 15, 2014, or 30 days after startup (whichever is later) for Group 2 storage vessels. A storage vessel affected facility that subsequently has its potential for VOC emissions decrease to less than 6 tpy shall remain an affected facility under this subpart.

40CFR63 Subpart HH (National Emission Standards for Hazardous Air Pollutants From Oil and Natural Gas Production Facilities)

This Subpart applies to owners and operators of each triethylene glycol (TEG) dehydration unit that are located at oil and natural gas production facilities. Only areas source requirements are included in General Permit G70-C, as defined in §63.761.

For area source applicability, the affected source includes each trietheylene glycol (TEG) dehydration unit located at a facility that meets the criteria specified in §63.760(a).

Glycol dehydration unit(s) are included in General Permit G70-C, Section 15.0.

Are there any TEG dehydration unit(s) at this facility? ☒ Yes ☐ No

Are the TEG dehydration unit(s) located within an Urbanized Area (UA) or Urban Cluster (UC)?
☐ Yes ☒ No

Are the glycol dehydration unit(s) exempt from 40CFR63 Section 764(d)? ☒ Yes ☐ No

If Yes, answer the following questions:

The actual annual average flowrate of natural gas to the glycol dehydration unit(s) is less than 85 thousand standard cubic meters per day, as determined by the procedures specified in §63.772(b)(1) of this Subpart. ☐ Yes ☒ No

The actual average emissions of benzene from the glycol dehydration unit process vent(s) to the atmosphere are less than 0.90 megagram per year (1 ton per year), as determined by the procedures specified in §63.772(b)(2) of this Subpart. ☒Yes ☐ No

SOURCE AGGREGATION DETERMINATION

"Building, structure, facility, or installation" is defined as all the pollutant emitting activities which belong to the same industrial grouping, are located on one or more contiguous and adjacent properties, and are under the control of the same person.

Are there surrounding wells or compressor stations under "common control" of the applicant?
☐ Yes ☒ No

Are the properties in question located on "contiguous or adjacent" properties?
☐ Yes ☒ No

Are there surrounding facilities that share the same two (2) digit SIC code?
☐ Yes ☒ No

Final Source Aggregation Decision.
☒ Source not aggregated with any other source.
☐ Source aggregated with another source. List Company/Facility Name:

RECOMMENDATION TO DIRECTOR

The information provided in the permit application, including all supplemental information received, indicates the applicant meets all the requirements of applicable regulations and the applicant has shown they meet the eligibility requirements of General Permit G70-C. Therefore, impact on the surrounding area should be minimized and it is recommended that the facility should be granted registration under General Permit G70-C.

Permit Engineer Signature: David Keatley
Name and Title: David Keatley, NSR Permit Writer
Date: December 13, 2016